List of Pending Claims (as of July 31, 2003)
No Claims are added, amended, or cancelled.
Application No.: 09/854,179
For: ABSORBENT STRUCTURE WITH INTEGRAL VAPOR TRANSMISSIVE MOISTURE BARRIER

1. A unitary absorbent core having a basis weight of about 75 gsm or greater, comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer.

2. The unitary absorbent core of claim 1, wherein the absorbent layer comprises natural fibers, synthetic fibers or a mixture thereof.

3. The unitary absorbent core of claim 1, wherein the hydrophobic moisture barrier comprises a hydrophobic material which at least partially coats the fibers of the lower surface of the absorbent layer.

4. The unitary absorbent core of claim 3 wherein the hydrophobic material is a natural or synthetic polymer.

5. The unitary absorbent core of claim 1 further comprising from about 5 to about 90 percent by weight of SAP.

6. The unitary absorbent core of claim 1, wherein the core has a basis weight of from about 80 gsm to about 1000 gsm.

7. The unitary absorbent core of claim 6, wherein the core has a basis weight of from about 100 gsm to about 500 gsm.

8. The unitary absorbent core of claim 1, wherein the core has a density of from about 0.03 to about 0.7 g/cc.

9. The unitary absorbent core of claim 8, wherein the core has a density of from about 0.04 to about 0.3 g/cc.

10. The unitary absorbent core of claim 1 having a hydrohead of 30 mm or more.

11. The unitary absorbent core of claim 10 having a hydrohead of 50 mm or more.

12. The unitary absorbent core of claim 11 having a hydrohead of 70 mm or more.

13. The unitary absorbent core of claim 1 having a strikethrough of 1.8 g or less.

14. The unitary absorbent core of claim 13 having a strikethrough of 1.2 g or less.

15. The unitary absorbent core of claim 14 having a strikethrough of 0.7 g or less.

16. The unitary absorbent core of claim 1 having an air permeability of 18 $m^3/min/m^2$ (60 $ft^3/min/ft^2$) or greater.

17. The unitary absorbent core of claim 1 having a water vapor transmission rate of 500 $g/m^2/24$ hr or greater.

18. The unitary absorbent core of claim 17 having a water vapor transmission rate of 1000 $g/m^2/24$ hr or greater.

19. The unitary absorbent core of claim 18 having a water vapor transmission rate of 2000 g/m^2/24 hr or greater.

20. The unitary absorbent core of claim 19 having a water vapor transmission rate of 3000 g/m^2/24 hr or greater.

21. The unitary absorbent core of claim 1 having a barrier effectiveness value of 30 mm or greater.

22. The unitary absorbent core of claim 21 having a barrier effectiveness value of 50 mm or greater.

23. The unitary absorbent core of claim 22 having a barrier effectiveness value of 75 mm or greater.

24. The unitary absorbent core of claim 1, wherein the moisture barrier has a structure which substantially is fibers coated with hydrophobic material.

25. The unitary absorbent core of claim 1, wherein the moisture barrier has a reticulated remnant of a barrier material emulsion extending from the lower surface region of the absorbent layer to form an outer reticulated foam barrier.

26. An absorbent article comprising:

(a) a liquid pervious top sheet, and

(b) a unitary absorbent core of claim 1.

27. The absorbent article of claim 22 further comprising a microporous backsheet.

28. The article of claim 26, wherein the article is an infant disposable diaper, a training pant, an absorbent surgical pad, an adult incontinence device, a sanitary napkin, a pantiliner or a feminine hygiene pad.

29. A process for the production of a unitary absorbent core having a basis weight of about 75 gsm or greater comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer comprising:

(a) producing a fibrous absorbent layer having upper and lower surfaces,

(b) applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer.

30. The process of claim 29, wherein the fibrous absorbent layer comprises natural fibers, synthetic fibers or a mixture thereof.

31. The process of claim 29, wherein the hydrophobic material is a natural or synthetic polymer.

32. The process of claim 29, wherein the core comprises from about 5 to about 90 percent by weight of SAP.

33. The process of claim 29, wherein the hydrophobic material is an emulsion polymer.

34. The process of claim 23, wherein the emulsion polymer is applied in the form of a foam.

35. The process of claim 34, wherein the emulsion polymer includes a foam stabilizer.

36. Process of claim 34, wherein the emulsion polymer includes a hydrophobicity agent.

37. The process of claim 29, wherein the fibrous absorbent layer is a nonwoven produced by an airlaid process.

38. The process of claim 29, wherein the unitary absorbent core comprises two or more fibrous strata where each stratum is produced in a separate unit operation as part of a continuous process.

39. The process of claim 38, wherein the unitary absorbent core comprises three or more fibrous strata.

40. The process of claim 29, wherein the process comprises providing a tissue having a basis weight of less than about 30 gsm, spraying the tissues with emulsion polymer binder having a dry basis weight of about 10 gsm or less and airlaying a fibrous stratum thereupon.

41. The process of claim 40, wherein the fibrous stratum contains fifty percent or more by weight of eucalyptus fibers.

42. The process of claim 29, wherein the unitary absorbent core comprises one or more strata which are multibonded with an emulsion polymer binder and thermal bicomponent fiber binder.

43. The process of claim 29, wherein the moisture barrier produced has a structure which at least partially coats the fibers at the surface of the absorbent layer with hydrophobic material.

44. The process of claim 29, wherein the moisture barrier produced has a reticulated remnant of a barrier material emulsion extending from the lower surface region of the absorbent layer to form an outer reticulated foam barrier.

45. A unitary absorbent core produced by the process of claim 29.

46. A breathable nonwoven fibrous material having a basis weight of about 75 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith comprising natural fibers, synthetic fibers or a mixture thereof, and a hydrophobic material which at least partially coats the fibers of a surface of the material.

47. A breathable, partially fibrous or nonfibrous nonwoven material or structure having a basis weight of about 45 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith, the material or structure comprising one or more spunbonded, meltblown, coformed, bonded carded, or foamed constituents, optionally in combination with natural fibers, synthetic fibers or a mixture thereof.

48. The nonwoven material or structure of claim 47, wherein the foamed constituent is a high internal phase emulsion (HIPE) foam.

49. The nonwoven material or structure of claim 47, wherein the material or structure is a combination comprising from about 50 to about 99 percent by weight of natural fibers, synthetic fibers or a mixture thereof.

50. The nonwoven material or structure of claim 47, wherein the material or structure has been produced in a unitary process.